Attorney Docket No. P71376US0
Application No. 10/586,138

Amendments to the claims:

This listing of claims replaces all prior versions, and listings, of claims in the application.

Listing of claims:

Claim 1 (original): Distance measuring device comprising an emitter and a receiver, said emitter being arranged to produce a magnetic field by means of a resonant circuit having a resonant frequency, said receiver being arranged to pick up at said resonant frequency the magnetic field emitted by the emitter and convert the strength of the magnetic field picked up into a first signal having an energy value, said emitter being arranged to produce said magnetic field intermittently, each emission having a predetermined energy, said receiver being connected to a detector arranged to determine a distance measurement signal representing the distance between the emitter and the receiver, wherein said detector is arranged to determine said distance measurement signal by correlation of said first signal with a second predetermined signal having a waveform ~~representative of~~ representing a signal to be picked up as obtained in the absence of perturbation by the receiver, said second signal comprising a time window having a predetermined duration and comprising at least an initial sub-period, an intermediate sub-period and a final sub-period, said second signal being an alternating signal synchronized with the first signal and where of the amplitude is attenuated during the initial and final periods and substantially at a maximum during the intermediate period,

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said detector being arranged to implement said correlation by multiplication and integration with said second signal.

Claim 2 (cancelled).

Claim 3 (original): Distance measuring device as claimed in claim 1, wherein said detector is arranged to implement said correlation by multiplication and integration with said second signal, which second signal is formed by said waveform representing a sinusoidal waveform in synchronization with the first signal itself multiplied by a Tukey window with reduced taper factor.

Claim 4 (original): Distance measuring device as claimed in claim 1, wherein said detector is arranged to implement said correlation by multiplication and integration with said second signal, which second signal is formed by said waveform representing a square waveform in synchronization with the first signal.

Claim 5 (currently amended): Distance measuring device as claimed in claim 1, wherein said emitter is housed in a case and arranged to produce said magnetic field outside said case with a power less than 1 mTesla, preferably less than 1 μTesla.

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Claim 6 (currently amended): Distance measuring device as claimed in claim 1, wherein said emitter comprises an <u>induction coil</u> ~~inductance~~ and a capacitor connected in series with one another and connected by means of electrical conductors to an energizing circuit, said energizing circuit comprising a voltage source and a resistor connected, through said electrical conductors, in series with the <u>induction coil</u> ~~inductance~~ and the capacitor, said energizing circuit also comprising a switching element making it possible to connect said electrical conductors to one another.

Claim 7 (currently amended): Distance measuring device as claimed in claim 6, wherein said energizing circuit, ~~is placed close to~~ the <u>induction coil,</u> ~~inductance~~ and the capacitor ~~and forms~~ <u>form</u> an autonomous unit with respect to the receiver.

Claim 8 (previously presented): Sleep disorder detector comprising a distance measuring device as claimed in claim 1, wherein said device is mounted on a support arranged to be applied onto the head of a living being so as to measure movements of the mouth.

Claim 9 (original): Sleep disorder detector as claimed in claim 8, wherein said detector comprises an analyzer having an input connected to the device and arranged to receive said distance measurement, said analyzer being arranged to divide said distance measurement signal into fractional parts and apply time windows to each fractional part of the distance measurement signal thus obtained, said detector also comprising a memory for storing a series of signal forms characterizing

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in a time window movements of the mouth of a living being, sai analyzer being arranged to compare said fractional parts of the distance measurement signal with each of said forms of the series and to produce a detection signal in the event of correspondence betwe n said fractional part and said form, the detection signal also comprising an indicator indicating the form having led to said correspondence.

Claim 10 (original): Sleep disorder detector as claimed in claim 9, herein said series comprises a first form indicating a sudden closing of the mouth, a second form in licating a slow opening of the mouth followed by a slow closing of the mouth, and a third form ndicating an increase in the amplitude of the signal at the breathing frequency followed by a lecrease in the signal at the breathing frequency.

Claim 11 (original): Sleep disorder detector as claimed in claim 9, wh rein said analyzer is arranged to produce an apnea signal when for the same window the detection si nal indicates both a first and a third form or indicates both a second and a third form.

Claim 12 (previously presented): Sleep disorder detector as claimed i claim 9, wherein said series comprises a fourth form indicating snoring.

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Claim 13 (previously presented): Sleep disorder detector as clain ed in claim 9, wherein said detector comprises an analyzer having an input connected to the devic : and arranged to receive said distance measurement signal, said analyzer being arranged to identify, n said distance measurement signal, signal forms representing brief and recurrent events and to proc uce a detection signal at each occurrence of such signals, the detection signal also comprising an ndicator indicating the form having led to said detection signal.

Claim 14 (original): Sleep disorder detector as claimed in claim 1 , this detector comprising a decision element using said detection signal to provide an indicati n of insufficient, correct or excessive treatment for the targeted sleep disorders.

Claim 15 (withdrawn): Movement analyzer comprising a distance m asuring device as claimed in claim 1, wherein said device is mounted on a support arranged to b : applied around a joint of a living being so as to measure the characteristics and/or statistics of tl e movements of this joint.

Claim 16 (withdrawn): Detector of periodic movements of limbs during sleep comprising a movement analyzer as claimed in claim 15, wherein said analyzer is arranged to identify, in said distance measurement signal, signal forms representing brief and recu rrent events and to produce a detection signal at each occurrence of such signals, the detection signa also comprising an indicator indicating the form having led to said detection signal.

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Claim 17 (withdrawn): Equipment for monitoring the development of Parkinson's disease comprising a movement analyzer as claimed in claim 15, wherein said analyzer is arranged to identify, in said distance measurement signal, signal forms representing tremor, rigidity and stooping states in order to produce a detection signal, the detection signal also comprising an indicator indicating the form having led to said detection signal.

Claim 18 (withdrawn): Equipment for detecting a loss of vigilance comprising a movement analyzer as claimed in claim 15, wherein said measuring device is placed so as to measure the inclination of the head and said analyzer is arranged to identify, in said distance measurement signal, events of slow inclination and sudden lifting of the head, in order to produce a detection signal.

Claim 19 (withdrawn): Equipment for detecting a loss of vigilance comprising a movement analyzer as claimed in claim 15, wherein said measuring device is arranged so as to measure the amplitude of opening of the eyelids and said analyzer is arranged to identify, in said distance measurement signal, events of recurrent blinking of the eyelids and a state of progressive decrease in the mean amplitude of opening of the eyelids, in order to produce a detection signal.

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Claim 20 (new): Distance measuring device as claimed in claim 1, w'ierein said emitter is housed in a case and arranged to produce said magnetic field outside said ca e with a power less than 1 μ Tesla.

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